

REMARKS

This Reply is in response to the Office Action mailed on May 31, 2007 in which claims 3 and 5 were maintained as being withdrawn; in which claims 9-17 and 19-21 were objected to and in which claims 1, 2, 4, 6-8, 18, 22-28, 30-36 and 40-46 were rejected. With this response, claims 3-5 are canceled; claims 1, 9, 10, 16, 17, 20, 23, 25, 40-43 are amended; and claims 47-52 are added. Claims 1-2, 6-28, 30-36 and 40-52 are presented for reconsideration and allowance. Reinstatement of claims 3 and 5 which depend from claim 1 is also requested.

I. Rejection of Claim 1 under 35 USC 102 (b) Based upon Gast

Sections 2 and 3 of the Office Action rejected claim 1 under 35 USC 102(b) as being anticipated by Gast et al. US Patent 6,076,915. Claim 1 is amended to incorporate the limitations of former dependent claim 4 which was not rejected based upon Gast. Accordingly, claim 1, as amended, overcomes rejection based upon Gast.

II. Rejection of claims 1, 2, 4, 6-8, 18, 22-28, 30-36 and 40-46 under 35 USC 103(a) based upon Nishikori and Ishibashi

Sections 5-11 of the Office Action rejected claims 1, 2, 4, 6-8, 18, 22-28, 30-36 and 40-43 under 35 USC 103(a) as being unpatentable over Nishikori et al. US Patent 6,832,825 in view of Ishibashi US Patent Publication 200350210412. Claim 4 is canceled with its limitations incorporated into claim 1. Claims 1, 2, 6-8, 18, 22-28, 30-36 and 40-46, as amended, overcome the rejection based upon Nishikori and Ishibashi.

Claims 1, 32, 40, 41, 42 and 43 are directed to a method, a printing system, a computer-readable media, a printing system, a printing system and a method, respectively. Each of claims 1, 32, 40, 41, 42 and 43 recites printing a reference image using a first portion of image forming points of a printhead and printing a diagnostic image using a second portion of the image forming points of a printhead, wherein the reference image and the diagnostic image at least partially overlap.

Neither Nishikori nor Ishibashi, alone or in combination, disclose or suggest printing reference images using a first portion of image forming points of a printhead and printing a diagnostic images using a second portion of the image forming points of a printhead, wherein the reference images and the diagnostic images at least partially overlap. In contrast, Nishikori merely discloses a method for adjusting the amount of ink ejected by nozzles based upon the detected density of a pattern of printed patches. Ishibashi merely discloses a method for aligning printing of an electrophotographic printer in which toner image is formed on a photosensitive drum an applied to transfer belts before being transferred to paper. Neither reference has anything to do with printing overlapping images using distinct portions of a printhead.

In rejecting the claims based upon Nishikori and Ishibashi, the Office Action acknowledges that Nishikori fails to disclose a reference image in a diagnostic image that at least partially overlap. (Office Action, p. 4). As a result, the Office Action attempts to additionally rely upon Ishibashi by asserting that:

Ishibashi discloses a misalignment detection method where an alignment pattern is obtained by printing a reference pattern and a diagnostic image, wherein both partially overlap (as seen in fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Nishikori et al. invention to include a means for partially overlap in the reference image with a diagnostic image as taught by Ishibashi for the purpose of detecting an optical density in order to calibrate the printheads.

(Office Action, p. 4).

However, this alleged motivation is without merit because (A) neither Nishikori nor Ishibashi are analogous art, (B) the motivation cited in Ishibashi by the Office Action is not applicable to Nishikori and (C) the alleged modification of Nishikori based upon Ishibashi would destroy the principle of operation and the functioning of Nishikori.

A. Neither Nishikori nor Ishibashi are analogous art.

As noted above, each of the rejected Independent claims 1, 32, 40, 41, 42 and 43 are directed to printing a reference image with a first portion of image forming points of a printhead and printing a diagnostic image with a second portion of image forming points of the printhead. The diagnostic image in the reference image overlap. As noted in the specification, the optical density of the overlapping images is used to determine a compensation value for addressing printhead nozzle misalignments.

Neither Nishikori nor Ishibashi is even remotely related to the same issues or the same problems addressed by claims 1, 32, 40, 41, 42 and 43. Nishikori has nothing to do with compensating for nozzle positional misalignments of a printhead. In contrast, Nishikori is solely related to adjusting the amount of fluid ink ejected from the nozzles of a printhead. One of ordinary skill in the art looking to address positional misalignments of inkjet printhead nozzles would not look to art relating to adjusting the amount of fluid ink ejected from nozzles.

Ishibashi is even more remote. Ishibashi does not even relate to printing via nozzles of a print head. In contrast, Ishibashi is solely related to aligning printing of an electrophotographic printer in which toner image is formed on a photosensitive drum and applied to transfer belts before being transferred to paper. The issues relating to the alignment of images formed by an electrophotographic printer using toner applied by electrostatic forces are entirely different and unrelated to the issues relating to positional misalignments of nozzles of an inkjet print head. One of ordinary skill in the art looking to address positional misalignments of inkjet printhead nozzles would not look to art relating to electrophotographic printers which apply toner using electrostatic forces.

Moreover, Nishikori and Ishibashi are not even analogous to one another. One of ordinary skill in the art attempting to address the inconsistent ejection of fluids from inkjet nozzles (Nishikori) would clearly not look to art related to electrophotographic printers which apply toner using electrostatic forces. Thus, it would not be obvious to modify Nishikori based upon Ishibashi.

B. The motivation cited in Ishibashi by the Office Action is not applicable to Nishikori.

The Office Action alleges that one of ordinary skill in the art would be led to modify Nishikori based upon Ishibashi "for the purpose of detecting an optical density in order to calibrate the printheads."

However, this motivation is not applicable to Nishikori. First, nowhere does Nishikori ever indicate that it would be desirable to calibrate its printheads.

Second, even assuming, arguendo, that Nishikori did mention the desirability of calibrating its printheads, one of ordinary skill in the art would have absolutely no reasonable expectation of success when allegedly modifying Nishikori based upon Ishibashi. Just because Ishibashi discloses a method that overlaps images to align electrophotographic printing using toner, this disclosure would in no way lead one of ordinary skill in the art to believe that the same technique would somehow assist in addressing positional misalignments of nozzles of an inkjet printhead. As noted above, Nishikori and Ishibashi are from completely distinct non-analogous fields.

B. The alleged modification of Nishikori based upon Ishibashi would destroy the principle of operation and the intended functioning of Nishikori.

It is well settled law that THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE and THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE. (See MPEP 2143.01). In the present case, the Office Action proposes to modify Nishikori based upon Ishibashi such that the patches overlap.

However, such a modification would destroy the printable operation and intended functioning of Nishikori. Nishikori uses distinct nozzle blocks to print distinct patches that do not overlap so that the optical densities of the distinct patches may be compared and used to

adjust the relative amounts of ink ejected by the nozzle blocks. To alternatively overlap the patches would seemingly prevent Nishikori from distinguishing between patches from different nozzle blocks and would thus prevent Nishikori from achieving its objective of adjusting the relative amount of ink ejected by the nozzle blocks. Such a modification would render Nishikori unsatisfactory for its intended purpose and would change the entire principle of operation of Nishikori. Accordingly, the rejection of claims 1, 32, 40, 41, 42 and 43 should be withdrawn. The rejection of claims 2, 6-8, 18, 22-28, 30-31, 33- 36 and 44 -46, which depend from claims 1, 32, 40, 41, 42 and 43 should be withdrawn for at least the same reasons.

III. Added Claims

With this response, claims 47-52 are added. Claims 47-52 are believed to be patentably distinct over the prior art of record.

A. Claims 47-50

Section 12 of the Office Action indicated that claims 9-12 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response, former claim 9 is rewritten in independent form as added claim 47 and includes all of the limitations of former base claim 1. Claims 48-50 depend from claim 47 and correspond to former dependent claims 10-12, respectively. Accordingly, claims 47-50 are presented for consideration and allowance.

B. Claim 51

Section 12 of the Office Action indicated that claim 19 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response, former claim 19 is rewritten in independent form as added claim 51 and includes all of the limitations of former base claim 1. Accordingly, claim 51 is presented for consideration and allowance.

C. Claim 52

Section 12 of the Office Action indicated that claim 20 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response, former claim 20 is rewritten in independent form as added claim 52 and includes all of the limitations of former base claim 1. Accordingly, claim 52 is presented for consideration and allowance.

IV. Conclusion

Claims 1-2, 6-28, 30-36 and 40-52 are presented for reconsideration and allowance.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 08-2025. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 08-2025. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 08-2025.

Respectfully submitted,

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